AMENDMENT TO THE CLAIMS:

1. (withdrawn): A method of preparing a crystal of at least a portion of $\alpha 1\beta 1$integrin comprising the steps of:

a) providing an aqueous solution comprising at least a portion of $\alpha 1\beta 1$ integrin;

b) providing a reservoir solution comprising a precipitating agent;

c) mixing a volume of said aqueous solution with a volume of said reservoir solution thereby forming a mixed volume; and

d) crystallizing at least a portion of said mixed volume.

2. (withdrawn): The method of claim 1 wherein the aqueous solution of said at least a portion of $\alpha 1\beta 1$ integrin provided in step a) has a concentration of $\alpha 1\beta 1$ integrin of about 1 to about 50 mg per ml.

3. (withdrawn): The method of claim 2 wherein the aqueous solution has a concentration of $\alpha 1\beta 1$ integrin of about 5 mg per ml to about 15 mg per ml.

4. (withdrawn): The method of claim 3 wherein the aqueous solution has a concentration of $\alpha 1\beta 1$ integrin of about 10 mg per ml.

5. (withdrawn): The method of claim 1 wherein the precipitating agent is selected from the group consisting of sodium citrate, ammonium sulfate and polyethylene glycol.

6. (withdrawn): The method of claim 1 wherein the concentration of the precipitating agent in the reservoir solution is about 15% w/v to about 35% w/v.

7. (withdrawn): The method of claim 6 wherein the concentration of precipitating agent is about 25% w/v.

8. (withdrawn): The method of claim 1 wherein the pH of the reservoir solution is about 4 to about 10.

9. (withdrawn): The method of claim 8 wherein the pH is about 6.5.

10. (withdrawn): The method of claim 1 wherein step d) is by vapor diffusion crystallization, batch crystallization, liquid bridge crystallization or dialysis crystallization.

11. (withdrawn): The method of claim 1, wherein the at least a portion of $\alpha 1\beta 1$ integrin comprises at least a portion of an $\alpha 1$ chain of $\alpha 1\beta 1$ integrin.

12. (withdrawn) : The method of claim 11, wherein the portion of the $\alpha 1$ chain includes an I-domain.

13. (withdrawn): A crystal formed by a functional fragment of the extracellular domain of $\alpha 1\beta 1$ integrin or a homolog thereof, the crystal having approximately the following cell constants: a= 34.77 Å; b= 85.92 Å; c= 132.56 Å, $\gamma = 90$ and a space group of $P2_1\ 2_1\ 2_1$.

14. (withdrawn): The crystal of claim 13, wherein the extracellular domain extends from Cys143 to Ala340 of $\alpha 1\beta 1$ integrin.

15. (withdrawn): The crystal according to claim 13 described by the structural coordinates identified in Table II.

16. (withdrawn): The crystal of $\alpha 1\beta 1$ integrin according to claim 13, or a homolog thereof, wherein said crystal has a binding site comprising amino acids Asp154, Ser156, Asn157, Leu222, Gln223, Thr224, Asp257, Glu259, His261, His288, Tyr289, Gly292, Leu294 and Lys298.

17. (withdrawn): A machine readable data storage medium comprising a data storage material encoded with machine readable data which, when read by an appropriate

machine, is capable of displaying a three dimensional representation of a crystal of a molecule or molecular complex comprising a fragment of $\alpha 1\beta 1$ integrin having a binding site comprising amino acids Asp154, Ser156, Asn157, Leu222, Gln223, Thr224, Asp257, Glu259, His261, His288, Tyr289, Gly292, Leu294 and Lys298.

18. (withdrawn): A method for determining at least a portion of a three dimensional structure of a molecular complex comprising at least a portion of $\alpha 1\beta 1$ integrin, said method comprising the steps of:

a) determining the structural coordinates of a crystal of the fragment of $\alpha 1\beta 1$ integrin;

b.) calculating phases from the structural coordinates;

c) calculating an electron density map from the phases obtained in step b);

d) determining the structure of at least a portion of the complex based upon said electron density map.

19. (withdrawn): The method of claim 18 wherein the structural coordinates used in step a) are (1) substantially the same as those described in Table II or (2) describe substantially the same crystal as the coordinates in Table II.

20. (currently amended): A method for evaluating the ability of a chemical entity to associate with ~~at least~~ an ~~portion of~~ I-domain of the $\alpha 1$ chain of the $\alpha 1\beta 1$ integrin ~~or with at least a portion of an $\alpha 1\beta 1$ integrin receptor,~~ or a complex comprising $\alpha 1\beta 1$ integrin, ~~said receptor,~~ or homologs thereof, said method comprising the steps of:

(a) employing computational or experimental means to perform a fitting operation between the chemical entity and said ~~at least a portion of~~ $\alpha 1\beta 1$ integrin or ~~receptor~~ I-domain or complex thereof, thereby obtaining data related to said association; and

(b) analyzing the data obtained in step a) to determine the characteristics of the association between the chemical entity and said at least a portion of $\alpha 1\beta 1$ integrin or I-domain ~~receptor~~ or complex.

21. (withdrawn): A chemical entity identified by the method of claim 20, wherein said chemical entity is capable of interfering with the in vivo or in vitro association between an extracellular matrix protein and said at least a portion of $\alpha 1\beta 1$ integrin.

22. (withdrawn): A chemical entity identified by the method of claim 20, wherein said chemical entity is capable of associating with a binding site on said at least a portion of $\alpha 1\beta 1$ integrin, wherein said binding site comprises amino acids Asp154, Ser156, Asn157, Leu222, Gln223, Thr224, Asp257, Glu259, His261, His288, Tyr289, Gly292, Leu294 and Lys298.

23. (withdrawn): A heavy atom derivative of a crystallized form of at least a portion of $\alpha 1\beta 1$ integrin.

24. (withdrawn): A heavy atom derivative of the crystal of claim 23.

25. (withdrawn): The use of the structural coordinates of at least a portion of $\alpha 1\beta 1$ integrin to solve a crystal form of a mutant, homologue or co-complex of at least a portion of $\alpha 1\beta 1$ integrin by molecular replacement.

26. (withdrawn): A method of obtaining information related to association of a chemical entity with a binding site of at least a portion of $\alpha 1\beta 1$ integrin, the method comprising forming a crystal of at least a portion of $\alpha 1\beta 1$ integrin, or a mutant, or homolog or co-complex of said $\alpha 1\beta 1$ integrin.

27. (withdrawn): The method of claim 26 wherein the crystal has the structural coordinates described in Table II.

28. (withdrawn): A method for identifying, characterizing or designing a chemical entity having a desired association with at least a portion of $\alpha 1\beta 1$ integrin, comprising the step

of determining structural coordinates of a crystal whose structural coordinates are substantially the same as the crystal of $\alpha 1\beta 1$ integrin described in Table II.

29. (withdrawn): The method of claim 28, further comprising the step of optimizing the binding characteristics of the chemical entity identified, characterized, or designed.

30. (withdrawn): The method of claim 28, further comprising the step of determining the orientation of ligands in a binding site of at least a portion of $\alpha 1\beta 1$ integrin.

31. (withdrawn): A chemical entity identified or designed according to claim 28.

32. (withdrawn): A method of determining a binding interaction between a chemical entity and at least a portion of $\alpha 1\beta 1$ integrin, the method comprising forming at least a portion of an $\alpha 1\beta 1$ integrin crystal and determining its structual coordinates.

33. (withdrawn): The method according to claim 32, wherein said at least a portion of $\alpha 1\beta 1$ integrin crystal is the crystal of claim 13.

Respectfully submitted,

Dated: March 30, 2004

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